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TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No. 98039 (BLL-0112)

In Re Application Of: **LESLIE JAMES WILDING**

Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
09/416,007	10/8/1999	Lewis G. West	36192	2682	5570

Invention: **SYSTEM FOR COUPLING A MOBILE RADIO SERVICE BASE STATION TO AN ANTENNA**

COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on **July 16, 2004**

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Signature

Dated: **September 15, 2004**

David A. Fox
Registration No. 38,807
CANTOR COLBURN LLP
55 Griffin Road South
Bloomfield, CT 06002
Telephone (860) 286-2929
Facsimile (860) 286-0115

Customer No. 36192

cc:

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Sheila Smedick

Signature of Person Mailing Correspondence

Sheila Smedick

Typed or Printed Name of Person Mailing Correspondence

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	LESLIE JAMES WILDING	)	
		)	
SERIAL NO.:	09/416,007	)	ART UNIT:
		)	2682
FILED:	October 8, 1999	)	
		)	EXAMINER:
FOR:	SYSTEM FOR COUPLING A MOBILE RADIO SERVICE BASE STATION TO AN ANTENNA	)	West, Lewis G.

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APPEAL BRIEF

1. REAL PARTY IN INTEREST

The real party in interest in this Appeal is the Assignee, Bellsouth Intellectual Property Corporation.

2. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences known at this time to the Appellant, or the Appellant's legal representatives which will directly affect, or be directly affected by, or have a bearing upon the Board's decision in this appeal.

3. STATUS OF THE CLAIMS

Claims 1-4, 7-14 and 17-19 are pending in the application.

Claims 1-4, 9, 11-14 and 18 stand rejected under 35 U.S.C. § 103 as being unpatentable over Nuding in view of Taira. [1]

Claims 7, 8 and 17 stand rejected under 35 U.S.C. § 103 as being unpatentable over Nuding in view of Taira and Watanabe.

Claims 10 and 19 stand rejected under 35 U.S.C. § 103 as being unpatentable over Nuding in view of Taira and Solondz.

The rejection of claims 1-4, 7-14 and 17-19 is appealed.

4. STATUS OF AMENDMENTS

There have been no amendments after the Final Office Action of April 19, 2004. The claims on Appeal are attached hereto as an Appendix.

5. SUMMARY OF THE INVENTION

The following is a concise explanation of the invention. Reference to the specification and drawings is made pursuant to 37 CFR 1.192 and is not intended to limit the claims to the embodiments shown and described in the application.

Embodiments of the invention relate to a base station transmitter and a base station receiver coupled to a common antenna. As shown in Figure 2, the system includes an antenna 225 between a receiver side and a transmitter side. A bandpass filter 215 is positioned between the antenna and the receiver side to pass receive signals within a frequency range to the receiver side. An isolator 230 is positioned between the antenna and the transmit side to prevent received signals from being routed to the transmit side.

The receiver side includes a number of receive branch networks 212. Each receive branch network is designed to receive signals in a specific frequency range. To provide this function, each receive branch network includes a receive filter 212b for passing a block of frequencies to a receiver 250. The block of frequencies passed by the receiver filter 212b may correspond to hopping channels. As known in the art and as used in the specification, hopping channels correspond to frequencies inside a passband of the branching filter (page 14, lines 24 –34).

[1] Page 2 of the Office Action erroneously identifies claims 1-4, 7-14 and 17-18 as being rejected over Nuding in view of Taira.

6. ISSUES

Whether claims 1-4, 7-14 and 17-18 are patentable over Nuding in view of Taira.

Whether claims 7, 8 and 17 are patentable over Nuding in view of Taira and Watanabe.

Whether claims 10 and 19 are patentable over Nuding in view of Taira and Solondz.

7. GROUPING OF CLAIMS

Claims 1-4, 7-11, 13, 14 and 17-19 stand or fall together.

Claim 12 stands or falls alone.

8. ARGUMENT

Claims 1-4, 7-11, 13, 14 and 17-18

Claims 1 and 13 recite features that are not found in claim 12 and thus claims 1-4, 7-11, 13, 14 and 17-18 are considered to stand or fall separate from claim 12. In particular, claims 1 and 13 recite additional structural details of the system whereas claim 12 recites a method. Thus, claim 12 stands or falls alone.

Claims 1-4, 9, 11-14 and 18 were rejected under 35 U.S.C. § 103 as being unpatentable over Nuding in view of Taira. This rejection is traversed for the following reasons.

Claim 1 recites "each receive branch network includes a receive filter passing a block of frequencies to a base receiver, the block of frequencies corresponding to hopping channels inside a passband of said receive filter; said hopping channels used to change a frequency of communication between a mobile station and said base station receiver." Nuding teaches a radio relay system in which transmitters S1-Sn and receivers E1-En are coupled to a common antenna A. The receivers E1-En include filters EW1-Ewn and associated circulators tuned to a narrow frequency band. Nuding does not disclose filtering a block of frequencies corresponding to hopping channels as recited in

claim 1. In fact, Nuding teaches that the filters are tuned to a narrow frequency band (column 2, lines 41-44). Taira was relied upon for disclosing an isolator between an antenna and a transmitter path but fails to teach filtering a block of frequencies corresponding to hopping channels as recited in claim 1. Thus, even if Nuding and Taira are combined, the invention of claim 1 does not result. Neither reference teaches a "receive filter passing a block of frequencies to a base receiver, the block of frequencies corresponding to hopping channels inside a passband of said receive filter; said hopping channels used to change a frequency of communication between a mobile station and said base station receiver."

In the final office action ,the Examiner advances two grounds for construing Nuding as teaching receive filters passing a block of frequencies correspond to hopping channels. First, the Examiner states that the filter frequencies claimed reflect an intended use and as such, a structural difference must exist between the claims and the prior art in order to patentably distinguish the invention from the prior art. Appellant submits that the claimed filter frequencies do provide a structural difference between the claimed filters and the filters EW of Nuding. Filters are commonly defined by their frequency characteristics and the recitation of different frequency responses does indeed define a different filter. Not all filters are structurally similar. For example, a prior art lowpass filter cannot anticipate an inventive high pass filter. The frequency response defines the characteristics of the filter and cannot be disregarded as intended use. The Examiner also cites two cases directed to a claimed process of making which are not relevant to the pending claims. Thus, the claimed filters are structurally different than the filters of Nuding by virtue of the frequencies passed.

A second basis for construing Nuding as teaching receive filters passing a block of frequencies correspond to hopping channels is Official Notice. The Examiner takes Official Notice that frequency hopping is notoriously well known and results in nonstructural change. The Examiner reasons that it would have been obvious to use frequencies from an existing filter for the intended use of frequency hopping in order to prevent interference in communications. Although Appellant acknowledges that frequency hopping is known in the art, this does not teach or suggest modifying the filters EW in Nuding to pass a block a frequencies corresponding to frequency hopping

channels. There is no motivation provided by the Examiner other than the fact that frequency hopping exists. Clearly, the Board is familiar with the proper standard for a *prime facie* case of obviousness. The mere fact that a modification to the prior art "could" be implemented does not teach or suggest the desirability of such a modification. In the present case, the Examiner has provided no motivation to alter Nuding other than the fact that frequency hopping is known. In fact, Nuding teaches against filters EW passing a block of frequencies as Nuding repeatedly discusses "narrow band" filters which suggest limiting filter pass bands. In summary, the Examiner has failed to raise a *prima facie* case of obviousness.

For the above reasons, claim 1 is patentable over Nuding and Taira. Claims 2-4 and 9-11 are dependent upon claim 1 and are patentable over Nuding and Taira for at least the reasons advanced with respect to claim 1. Claims 13-14 and 18 include features similar to those discussed above with reference to claim 1 and are patentable over Nuding and Taira for at least the reasons advanced with respect to claim 1.

Claims 7, 8 and 17 were rejected under 35 U.S.C. § 103 as being unpatentable over Nuding in view of Taira and Watanabe. Watanabe was relied upon for teaching features of the base receiver, but does not cure the deficiencies of Nuding with respect to the receive branch networks. Thus, claims 7, 8 and 17 are patentable over Nuding in view of Taira and Watanabe.

Claims 10 and 19 were rejected were rejected under 35 U.S.C. § 103 as being unpatentable over Nuding in view of Taira and Solondz. Solondz was relied upon for teaching an unequal number of transmit and receive branches, but does not cure the deficiencies of Nuding with respect to the receive branch networks. Thus, claims 10 and 19 are patentable over Nuding in view of Taira and Solondz.

Claim 12

As discussed above, claim 12 stands or falls alone as claims 1 and 13 recite additional structural details of the system not found in claim 12. Claim 12 was rejected under 35 U.S.C. § 103 as being unpatentable over Nuding in view of Taira. This rejection is traversed for the following reasons.

Claim 12 recites "selecting a frequency range of receive signals for reception by one of the base station receivers and passing the receive signals to the receive branch networks located in a downstream portion of the receive path for processing by the remaining base station receivers, wherein the frequency range corresponds to a block of frequencies, the block of frequencies corresponding to hopping channels, said hopping channels used to change a frequency of communication between a mobile station and said base station receiver." As discussed above, the combination of Nuding and Taira fails to teach or suggest setting filters EW to filter a block of frequencies corresponding to hopping channels. The Examiner has failed to raise a *prima facie* case of obviousness with respect to claim 12. Accordingly, claim 12 is patentable over Nuding and Taira.

Appellant respectfully requests that the rejection of claims 1-4, 7-14 and 17-19 be reversed.

If there are any additional charges with respect to this appeal, or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Appellant's attorneys.

Respectfully submitted,

Bellsouth Intellectual Property Corporation

By:_____

David A. Fox
Registration No. 38,807
Cantor Colburn LLP
55 Griffin Road South
Bloomfield, CT 06002
Telephone (860) 286-2929
Facsimile (860) 286-0115
Customer No. 36192

Date: September 15, 2004

CLAIMS ON APPEAL

1. A system for coupling a base station transmitter and a base station receiver to an antenna for a commercial mobile radio service (CMRS) system, comprising:

an antenna for radiating transmit signals to and receiving receive signals from mobile radio stations of a CMRS system;

a plurality of receive branch networks, coupled to the antenna via a receive path and to the base receiver, each operative to select a frequency range of the receive signals for reception by the base station receiver and to pass the receive signals for processing by the remaining receive branch networks located in a downstream portion of the receive path;

a plurality of transmit branch networks, coupled to the antenna via a transmit path and to the base transmitter; each operative to select a frequency portion of the transmit signals transmitted by the base transmitter for forwarding to the antenna and to accept all transmit signals forwarded by the remaining transmit branch networks in a downstream portion of the transmit path for forwarding to the antenna;

a bandpass filter, coupled between the antenna and the receive path, for passing receive signals within a predetermined frequency range from the antenna circulator to the receive path while preventing the passage of transmit signals from the circulator to the receiver path; and

an isolator, coupled between the antenna and the transmit path, for passing transmit signals to the antenna circulator from the transmit path while preventing the passage of receive signals from the antenna to the transmit path;

wherein each receive branch network includes a receive filter passing a block of frequencies to a base receiver, the block of frequencies corresponding to hopping channels inside a passband of said receive filter; said hopping channels used to change a frequency of communication between a mobile station and said base station receiver.

2. The system of Claim 1, wherein each receive branch network comprises:

a circulator, comprising a first port and a third port coupled to the receive path and a second port, operative to accept receive signals from an upstream portion of the receive path via the first port, to pass the receive signals via the second port to the third

port and to the remaining receive branch networks located in the downstream portion of the receive path, and to output the receive signals via the second port; and

said receive filter being coupled between the second port of the circulator and the base receiver, operative to accept the receive signals from the second port of the circulator and to select the frequency range of the receive signals for processing by the base receiver.

3. The system of Claim 1, wherein each transmit branch network comprises:

a filter, coupled to the base transmitter, operative to output filtered transmit signals in response to select the frequency portion of the transmit signal generated by the base transmitter;

and a circulator, comprising a first port and a third port coupled to the transmit path and a second port coupled to the filter, operative to accept at the second port the filtered transmit signals for forwarding via the third port to an upstream portion of the transmit path and to accept at the first port the transmit signals output by remaining transmit branch networks located in the downstream portion of the transmit path for forwarding via the third port to the upstream portion of the transmit path.

4. The system of Claim 1 further comprising an antenna circulator, coupled between the receive and transmit paths and to the antenna, for directing receive signals from the antenna to the receive path and transmit signals from the transmit path to the antenna.

7. The system of Claim 1, wherein the base receiver comprises a plurality of channel receivers, each allocated a unique frequency range and coupled to one of the receive branch networks for processing receive signals within the unique frequency range.

8. The system of Claim 1, wherein the base transmitter comprises a plurality of transmitters, each allocated a unique frequency range and coupled to one of the transmit branch networks for generating transmit signals within the unique frequency range.

9. The system of Claim 2, wherein the filter of each receive branch network comprises a filtering characteristic selected from the group of bandpass, highpass and lowpass filter characteristics.

10. The system of Claim 1, wherein the number of receive branch networks is not equal to the number of transmit branch networks.

11. The system of Claim 3, wherein the filter of each transmit branch network comprises a filtering characteristic selected from the group of bandpass, highpass and lowpass filter characteristics.

12. A method for coupling a base station transmitter and a base station receiver to an antenna for a commercial mobile radio service (CMRS) system, the antenna coupled to a receive path comprising receive branch networks for processing receive signals and to a transmit path comprising transmit branch networks for processing transmit signals, comprising:

at each of the receive branch networks, selecting a frequency range of receive signals for reception by one of the base station receivers and passing the receive signals to the receive branch networks located in a downstream portion of the receive path for processing by the remaining base station receivers, wherein the frequency range corresponds to a block of frequencies, the block of frequencies corresponding to hopping channels, said hopping channels used to change a frequency of communication between a mobile station and said base station receiver;

at each of the transmit branch networks, selecting a frequency portion of transmit signal transmitted by one of the base transmitters for forwarding to the antenna and accepting all transmit signals forwarded by the remaining transmit branch networks located in a downstream portion of the transmit path for forwarding to the antenna;

at the receive path, passing receive signals to the receive path from the antenna while preventing passage of transmit signals to the receive paths; and

at the transmit path, passing transmit signals to the antenna from the transmit path while preventing passage of receive signals to the transmit path.

13. A system for coupling a base station transmitter and a base station receiver to an antenna for a commercial mobile radio service (CMRS) system, comprising:

an antenna for radiating transmit signals to and receiving receive signals from mobile radio stations of a CMRS system;

a plurality of receive branch networks, coupled to the antenna via a receive path and to the base receiver, each comprising:

a circulator, comprising a first port and a third port coupled to the receive path and a second port, operative to accept receive signals from an upstream portion of the receive path via the first port, to pass the receive signals via the second port to the third port and to the remaining receive branch networks located in the downstream portion of the receive path, and to output the receive signals via the second port, and

a filter, coupled between the second port of the circulator and the base receiver, operative to accept the receive signals from the second port of the circulator and to select a frequency range of the receive signals for processing by the base receiver; and

a plurality of transmit branch networks, coupled to the antenna via a transmit path and to the base transmitter, each comprising:

a filter, coupled to the base transmitter, operative to output filtered transmit signals in response to selecting a frequency portion of the transmit signal generated by the base transmitter, and

a circulator, comprising a first port and a third port coupled to the transmit path and a second port coupled to the filter, operative to accept at the second port the filtered transmit signals for forwarding via the third port to an upstream portion of the transmit path and to accept at the first port the transmit signals output by remaining transmit branch networks located in the downstream portion of the transmit path for forwarding via the third port to the upstream portion of the transmit path;

wherein each receive branch network includes a receive filter passing a block of frequencies to a base receiver, the block of frequencies corresponding to hopping channels inside a passband of said receive filter; said hopping channels used to change a frequency of communication between a mobile station and said base station receiver.

14. The system of Claim 13 further comprising an antenna circulator, coupled between the receive and transmit paths and to the antenna, for directing receive signals from the antenna to the receive path and transmit signals from the transmit path to the antenna.

17. The system of Claim 13, wherein

the base receiver comprises a plurality of channel receivers, each allocated a unique frequency range and coupled to one of the receive branch networks for processing receive signals within the unique frequency range; and

the base transmitter comprises a plurality of transmitters, each allocated a unique frequency range and couple to one of the transmit branch networks for generating transmit signals within the unique frequency range.

18. The system of Claim 13, wherein the number of receive branch networks are equal to the number of transmit branch networks.

19. The system of Claim 13, wherein the number of receive branch networks are not equal to the number of transmit branch networks.